CBCS SCHEME

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BEE654B

Sixth Semester B.E./B.Tech. Degree Examination, June/July 2025
Technologies of Renewable Energy Sources

Time: 3 hrs. Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.

		Module – 1	M	L	C
Q.1	a.	Explain causes of energy scarcity.	06	L1	CO1
	b.	With the help of diagram, define (i) Hour angle (ii) Latitude angle (iii) Solar azimuth angle (iv) Declination angle	08	L2	CO1
	c.	Explain basic Rankine cycle of electricity production.	06	L2	CO1
		OR			
Q.2	a.	Discuss world wide renewable energy availability.	06	L1	CO1
	b.	Classify the energy resources. What are the factors affecting energy resource development.	08	L2	CO1
	c.	Explain various layers of the Sun.	06	L2	CO1
		Module – 2			
Q.3	a.	Write a short note on solar cell materials.	06	L2	CO2
	b.	Explain I-V characteristics of a solar cell. Discuss the efficiency of a solar cell.	08	L2	CO2
	c.	Explain with a neat sketch Heliostat electric power generating plant.	06	L2	CO2
		OR			
Q.4	a.	Explain the operation of solar pond with the help of a neat diagram.	06	L2	CO2
	b.	With neat sketch, explain flat plate solar collector.	08	L2	CO2
	c.	Explain working of Stirling or Brayton engine with a neat diagram.	06	L2	CO2
		Module – 3			
Q.5	a.	Discuss the considerations and guidelines for wind turbine site selection. Also explain world wide wind energy scenario.	10	L1	CO3
	b.	Explain different hydrogen production technologies.	10	L2	CO3
		OR			
Q.6	a.	Mention various advantages and disadvantages of waste recycling.	06	L1	CO3
	b.	With a block diagram, explain waste recovery management scheme.	08	L1	CO3
	c.	With neat diagram, explain working of double flash type geothermal electric power generation.	06	L2	CO3
		Module – 4			
Q.7	a.	With a neat sketch, explain updraft and downdraft gasifiers.	10	L2	CO4
	b.	Explain the single basin and two basin system of tidal power harnessing.	10	L2	CO5
		OR			
Q.8	a.	List the advantages and disadvantages of tidal power.	10	L1	CO5
	b.	Explain construction of biogas plat with a neat sketch.	10	L2	CO4
		Module – 5			
Q.9	a.	Explain the devices used for harnessing wave energy.	10	L2	CO5
	b.	What are the advantages, disadvantages and benefits of OTEC.	10	L2	CO5
		OR			
Q.10	a.	Explain working of oscillating water column device for harnessing sea wave energy.	10	L2	CO5
	b.	Explain open cycle and closed cycle OTEC techniques.	10	L2	CO5

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